Water Quality
NM Science Alignment

## New Mexico Content Standards and Benchmarks
### Science

| Content Standards | Benchmarks |
|---|---|
| 1.  Students will understand science concepts of order and organization. | a, b |
| 2.  Students will use evidence, models and explanations to explore the physical world. | a, b, c |
| 3.  Students will use form and function to organize and understand the physical world. | a |
| 4.   Students will understand the physical world through the concepts of change, equilibrium and measurement. | a, b, c, d, e, f |
| 5.  Students will acquire the abilities to do scientific inquiry. | a, b |
| 6.  Students will understand the process of scientific inquiry. | a, b, c, d, e, f, g, h |
| 7.  Students will know and understand the properties of matter. | none |
| 8.  Students will know and understand the properties of fields, forces and motion. | none |
| 9.  Students will know and understand the concepts of energy and the transformation of energy. | none |
| 10.Students will know and understand the characteristics that are the basis for classifying organisms. | a, b |
| 11.Students will know and understand the synergy among organisms and the environments of organisms. | a, b, c, d, e, f, g, j, k |
| 12.Students will know and understand properties of Earth Science. | f |
| 13.Students will know and understand basic concepts of cosmology. | none |
| 14.Students will know and understand the differences between and the interactions of science and technology. | c, d |
| 15.Students will know and understand the impact between science and technology in society. | e, f, g |
| 16.The students will know and understand the relationship between natural hazards and environmental risks for organisms. | a, b, c |

## New Mexico Content Standards and Benchmarks
### Math

| Content Standards | Benchmarks |
|---|---|
| 1.  Students will understand and use mathematics in Problem Solving. | a, b, c, d, e, f |
| 2.  Students will understand and use mathematics in Communication. | a, b, c, d, f |
| 3.  Students will understand and use mathematics in Reasoning. | a, b, c, d |
| 4.  Students will understand and use mathematical Connections. | a, b, c, d, e |
| 5.  Students will understand and use numbers and number relationships. | b, c, d |
| 6.  Students will understand and use number systems and number theory. | a, b, c, d, e |
| 7.  Students will understand and use computation and estimation. | a, b, c |
| 8.  Students will have a foundation in geometric concepts. | none |
| 9.  Students will understand and use measurement. | a, b |
| 10.Students will understand and use statistics. | a, c, d, e, f |
| 11.Students will understand and use probability. | a, b, c, d, e, f |
| 12.Students will understand and use patterns and functions. | a, b, c, d, e |
| 13.Students will understand and apply algebraic concepts. | a, b, c, d, e, g, h, I |

## Texas Essential Knowledge and Skills for Science
### 112.42 Integrated Physics & Chemistry

| Scientific Processes and Concepts | Student Expectations |
|---|---|
| 1.  The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate and ethical practices. | a, b |
| 2.  The student uses scientific methods during field and laboratory investigations. | a, b, c, d |
| 3.  The student uses critical thinking and scientific problem solving to make informed decisions. | a |
| 4.  The student knows concepts of force and motion evident in everyday life. | none |
| 5.  The student knows the effects of waves on everyday life. | none |
| 6.  The student knows the impact of energy transformations in everyday life. | b, h |
| 7.  The student knows relationships exist between properties of matter and its components. | e |
| 8.  The student knows that changes in matter affect everyday life. | e |
| 9.  The student knows how solution chemistry is a part of everyday life. | a, b, c, d, e |

## <u>Texas Essential Knowledge and Skills for Science</u>
## 112.43 Biology

| Scientific Processes and Concepts | Student Expectations |
|---|---|
| 1. Scientific process. The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate and ethical practices. | a, b |
| 2. Scientific process. The student uses scientific methods during field and laboratory investigations. | a, b, c, d |
| 3. Scientific process. The student uses critical thinking and scientific problem solving to make informed decisions. | a, b, c |
| 4. Science concepts. The student knows that cells are basic structures of all living things and have specialized parts that perform specific functions, and that viruses are different from cells and have different properties and functions. | d |
| 5. Science concepts. The student knows how an organism grows and how specialized cells, tissues and organs develop. | none |
| 6. Science concepts. The student knows the structures and functions of nucleic acids in the mechanisms of genetics. | none |
| 7. Science concepts. The student knows the theory of biological evolution. | none |
| 8. Science concepts. The student knows applications of taxonomy and can identify its limitations. | none |
| 9. Science concepts. The student knows metabolic processes and energy transfers that occur in living organisms. | a |
| 10. Science concepts. The student knows that, at all levels of nature, living systems are found within other living systems, each with its own boundary and limits. | none |
| 11. Science concepts. The student knows that organisms maintain homeostasis. | c, d |
| 12. Science concepts. The student knows that interdependence and interactions occur within an ecosystem. | a, d, e |
| 13. Science concepts. The student knows the significance of plants in the environment. | none |

## Texas Essential Knowledge and Skills for Science
### 112.44 Environmental Systems

| Scientific Processes and Concepts | Student Expectations |
|---|---|
| 1.  Scientific processes. The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate and ethical practices. | a, b |
| 2.  Scientific processes. The student uses scientific methods during field and laboratory investigations. | a, b, c |
| 3.  Scientific processes. The student uses critical thinking and scientific problem solving to make informed decisions. | a, b, c |
| 4.  Science concepts. The student knows the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes. | b |
| 5.  Science concepts. The student knows the interrelationships among the resources within the local environmental system. | a, b, c, d, e |
| 6.  Science concepts. The student knows the sources and flow of energy through an environmental system. | none |
| 7.  Science concepts. The student knows the relationship between carrying capacity and changes in populations and ecosystems. | c, d |
| 8.  Science concepts. The student knows that environments change. | a, b, c, d |

**Texas Essential Knowledge and Skills for Science**
**112.45 Chemistry**

| Scientific Processes and Concepts | Student Expectations |
|---|---|
| 1.  The student for at least 40% of the instructional time, conducts field and laboratory  investigations using safe, environmentally appropriate and ethical practices. | a, b |
| 2.  The student uses scientific methods during field and laboratory investigations. | a, b, c, d |
| 3.  The student uses critical thinking and scientific problem solving to make informed decisions. | a, b, c |
| 4.  The student knows the characteristics of matter. | a, b, c |
| 5.  The student knows that energy transformations occur during physical or chemical changes in matter. | c |
| 6.  The student knows that atomic structure is determined by nuclear composition, allowable electron cloud and subatomic particles. | none |
| 7.  The student knows the variables that influence the behavior of gases. | a |
| 8.  The student knows how atoms form bonds to acquire a stable arrangement of electrons. | none |
| 9.  The student knows the processes, effects and significance of nuclear fission and nuclear fusion. | none |
| 10. The student knows common oxidation-reduction reactions. | a, b |
| 11. The student knows that balanced chemical equations are used to interpret and describe the interactions of matter. | a, b |
| 12. The student knows the factors that influence the solubility of solutes in a solvent. | a, b, c |
| 13. The student knows the relationships among the concentration, electrical conductivity and colligative properties of a solution. | b, c |
| 14. The student knows the properties and behavior of acids and bases. | b, c, d |
| 15. The student knows factors involved in chemical reactions | none |

## Texas Essential Knowledge and Skills for Science
### 112.47 Physics

| Scientific Processes and Concepts | Student Expectations |
|---|---|
| 1.  The student for at least 40% of the instructional time, conducts field and laboratory investigations using safe, environmentally appropriate and ethical practices. | a, b |
| 2.  The student uses scientific methods during field and laboratory investigations. | a, b, c, d, e, f |
| 3.  The student uses critical thinking and scientific problem solving to make informed decisions. | a, b |
| 4.  The student knows the laws governing motion. | none |
| 5.  The student knows that changes occur within a physical system and recognizes that energy and momentum are conserved. | none |
| 6.  The student knows forces in nature. | none |
| 7.  The student knows the laws of thermodynamics. | a |
| 8.  The student knows the characteristics and behaviors of waves. | none |
| 9.  The student knows simple examples of quantum physics. | none |

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**Texas Essential Knowledge and Skills for Mathematics**

| Knowledge and Skills and Performance Descriptions | Student Expectations |
|---|---|
| 1. Number operation and quantitative reasoning: The student understands that different forms of numbers are appropriate for different situations. | a, b, c, d |
| 2. Number operation and quantitative reasoning: Student selects and uses appropriate operations to solve problems and justify solutions. | a, b, c, d |
| 3. Patterns, relationships and algebraic thinking: The student identifies proportional relationships in problem situations and solves problems. | a, b |
| 4. Patterns, relationship and algebraic thinking: The student makes connections among various representations of a numerical relationship. | a |
| 5. Patterns, relationships and algebraic thinking: The student uses graphs, tables and algebraic representations to make predictions and solve problems. | a |
| 6. Geometry and spatial reasoning: The student uses transformational geometry to develop spatial sense. | b |
| 7. Geometry and spatial reasoning: The student uses geometry to model and describe the physical world. | b, d |
| 8. Measurement: The student uses procedures to determine measures of solids. | c |
| 9. Measurement: Student uses indirect measurement to solve problems. | b |
| 10. Measurement: The student describes how changes in dimensions affect linear, area and volume measures. | a |
| 11. Probability and Statistics: The student applies concepts of theoretical and experimental probability to make predictions. | b |
| 12. Probability and statistics: The student uses statistical procedures to describe data. | c |
| 13. Probability and statistics: The student evaluates predictions and conclusions based on statistical data. | a |
| 14. Underlying processes and mathematical tools: The student applies mathematics to solve problems connected to everyday experiences, investigations in other disciplines and activities in and outside of school. | a, b, c, d |
| 15. Underlying processes and mathematical tools: The student communicates about mathematics through informal and mathematical language, representations and models. | a, b |
| 16. Underlying processes and mathematical tools:  The student uses logical reasoning to make conjectures and verify conclusions | a, b |